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Spatial & temporal mapping of future
criminal risk as a catalyst for
enforcement & reduction activity

MAPPING THE FUTURE?

Derek Johnson, Northumbria University, England

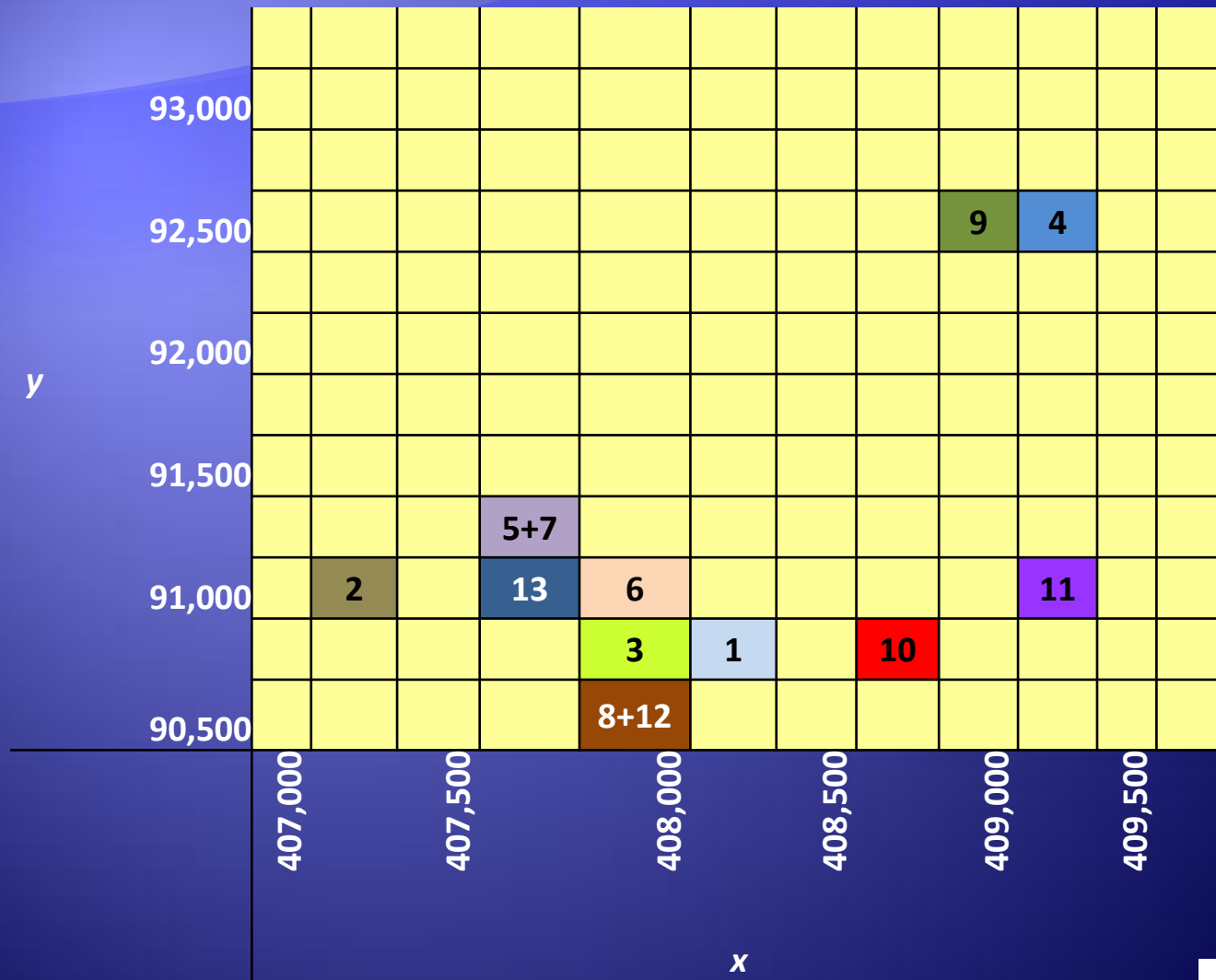
Background

- ❖ Jan/Feb 2005 analysis identifies near repeat phenomena.
- ❖ Feb/March reduction intervention devised
- ❖ April – reduction intervention begins in pilot areas of town
- ❖ January 2006 – evaluation shows overall reducing levels of burglary crime across the town - additional 6% reduction in intervention areas
- ❖ Near repeat phenomena no longer apparent (i.e. not statistically significant)

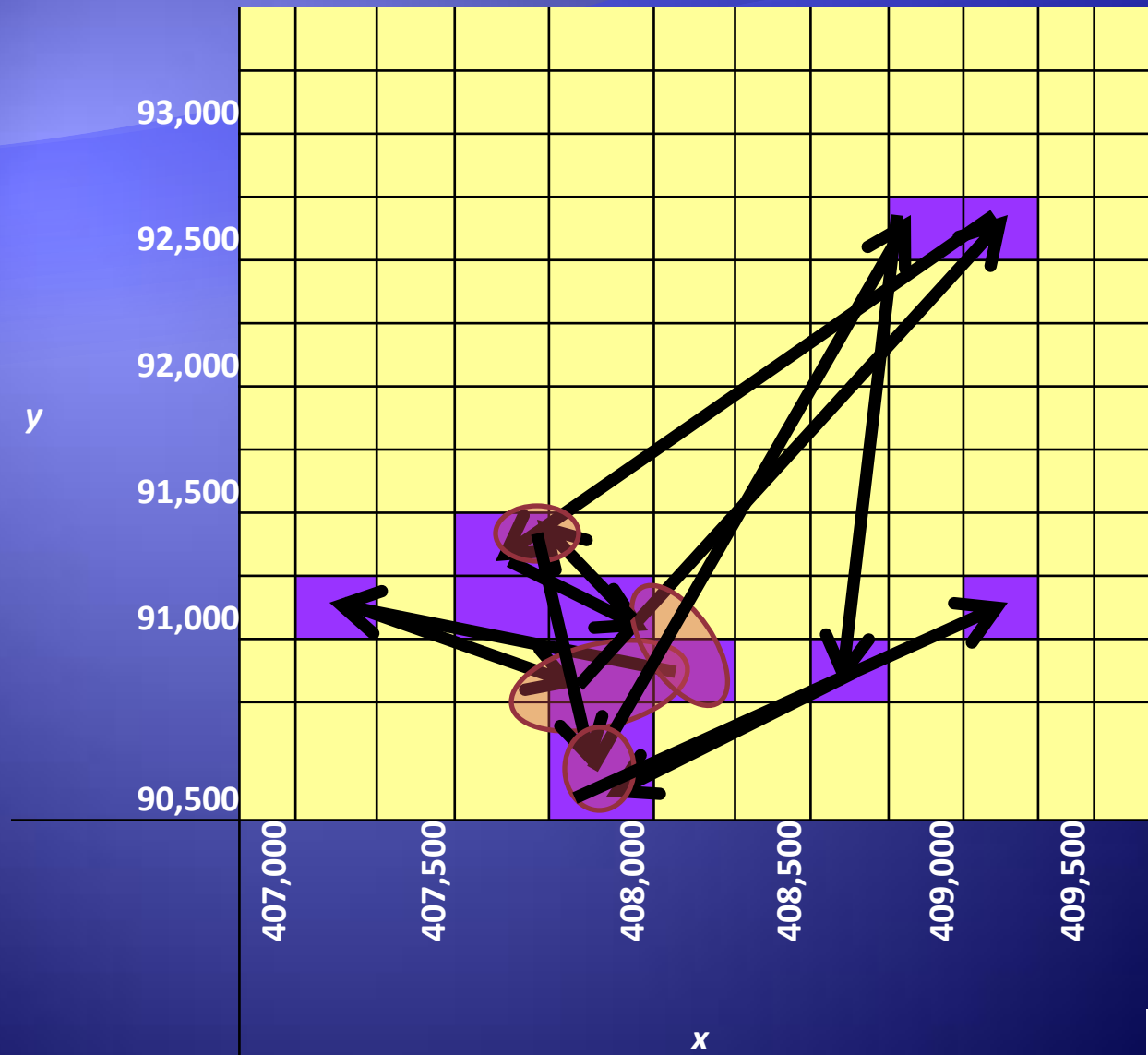
Further thinking

- ❖ Near repeat offences still taking place
- ❖ Serial offenders responsible?
- ❖ Common offenders?
- ❖ Identify & describe personal space-time patterns?
- ❖ Predict future burglary locations?

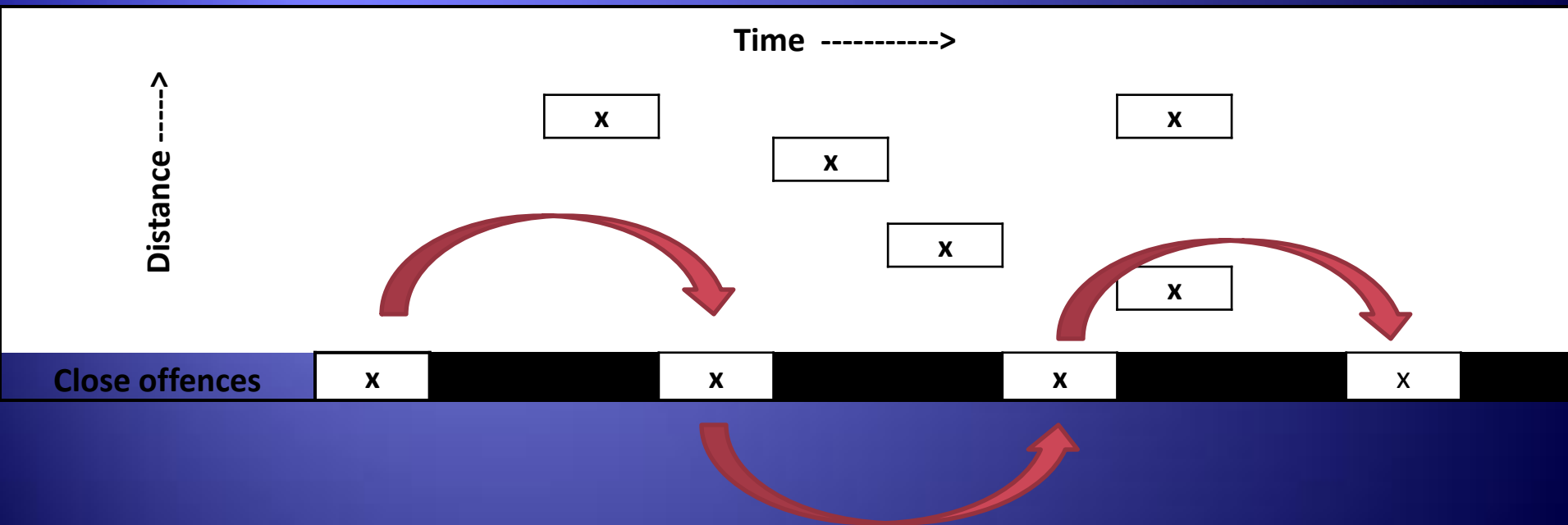
Representations



Short distances

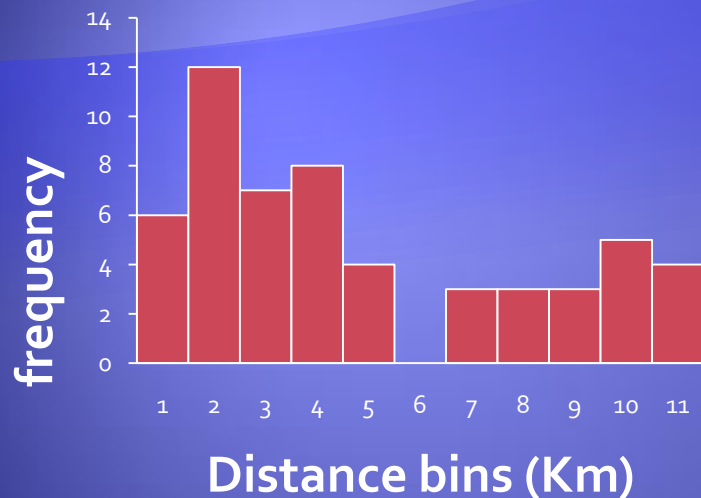


Time lapse

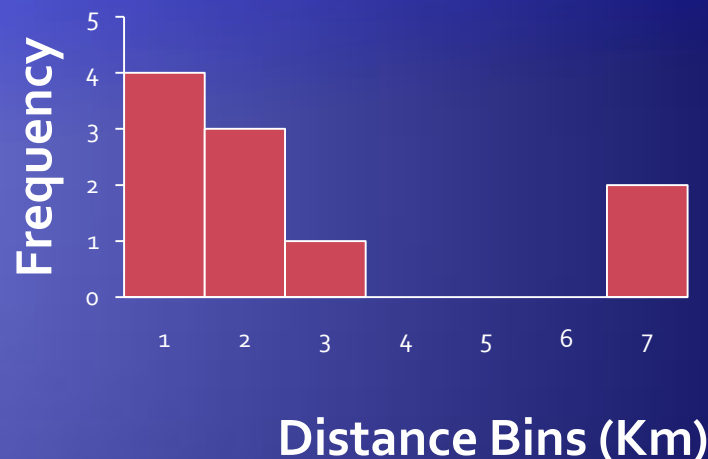


Offender analysis

Histogram of inter event distances

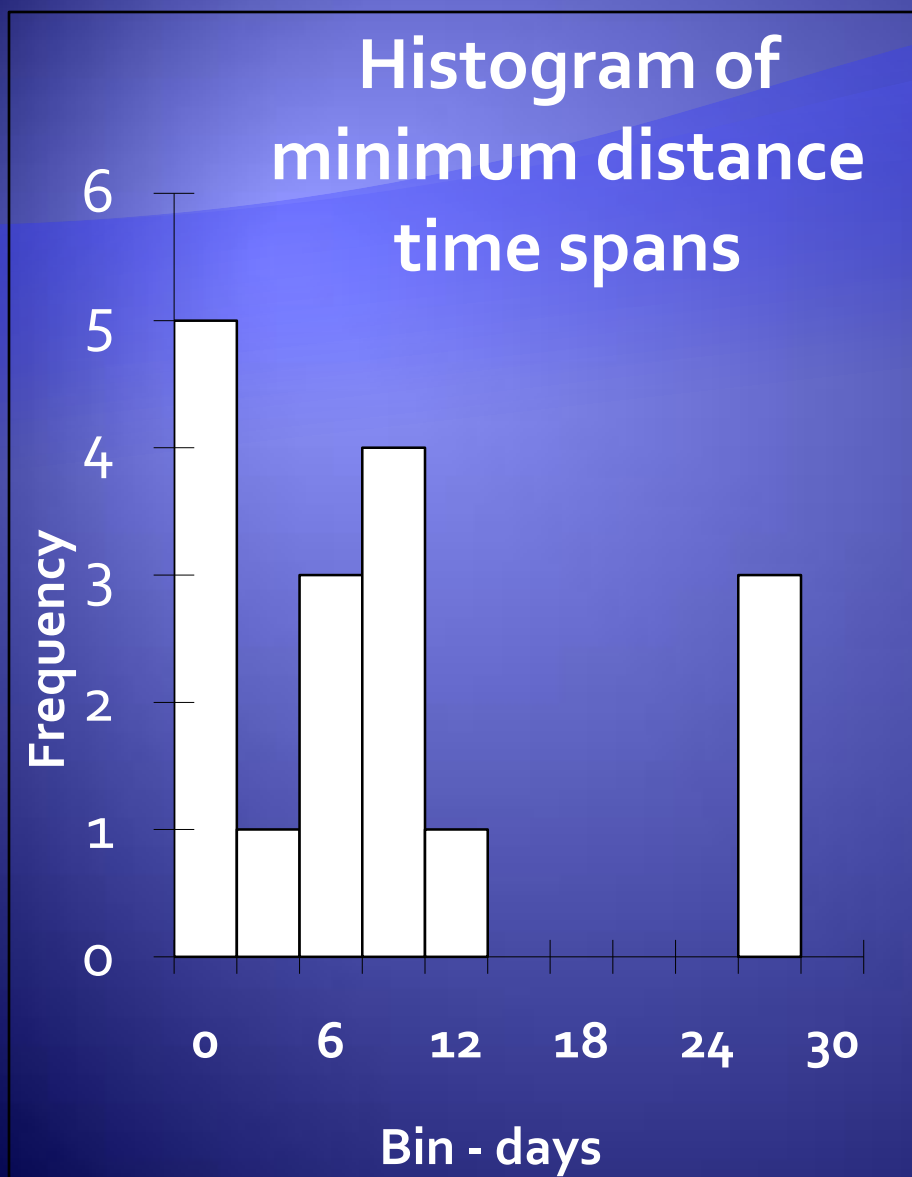


Histogram of future nearest neighbour distances



	Q1	Std dev.	Mean	Median	Skew	Range
Min. Distance	0.523	2.406	2.145	1.084	1.323	6.441

Offender analysis - time



mean	6.25
median	4.50
total days	40.00
min interval	1.00
max interval	21.00
std	6.30
pskew	0.83
Quartile 1	3.00

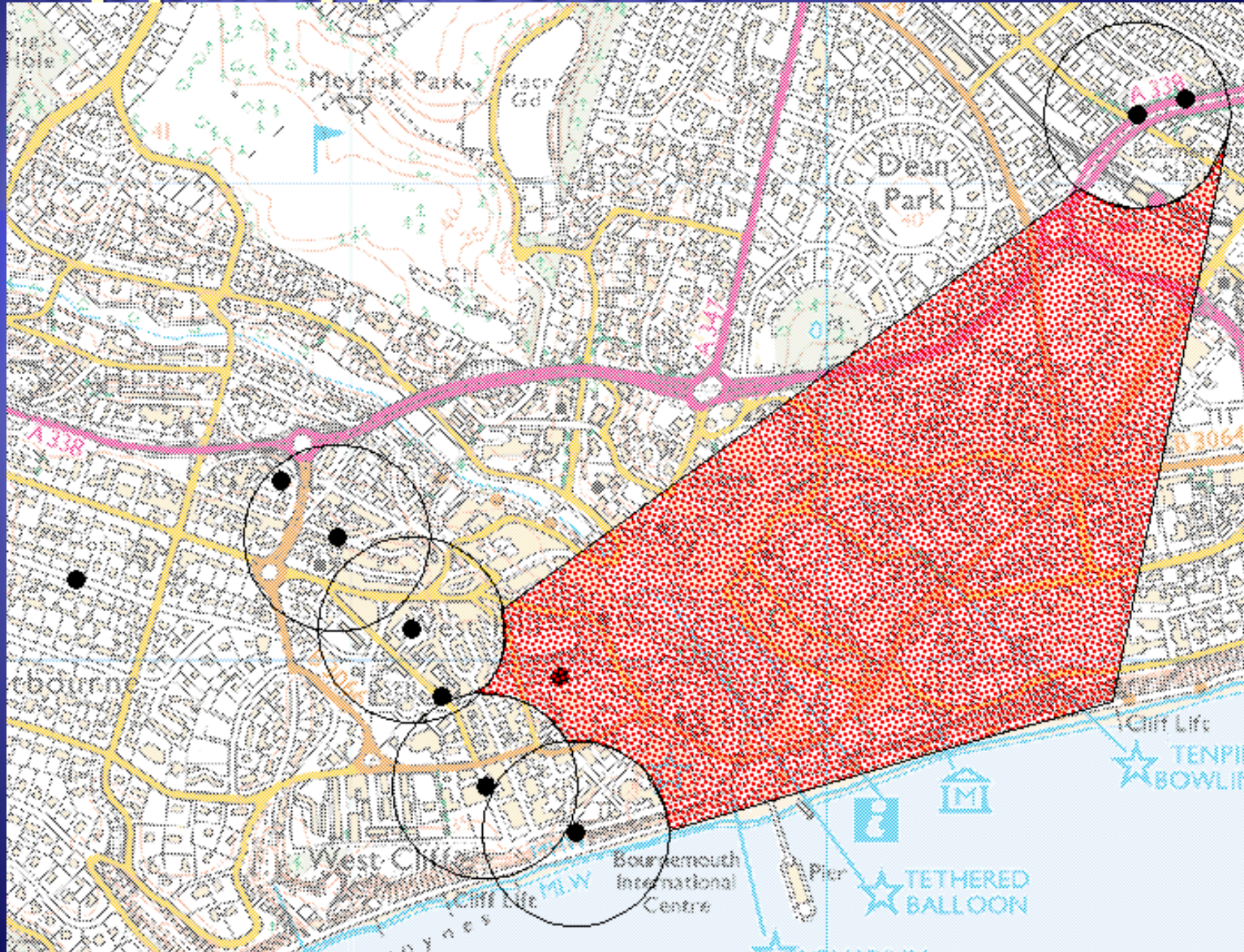
Some research conclusions

- ❖ Serial offenders display 'near repeat' behaviour
- ❖ Serial offenders are consistent over time, particularly with regard to what they consider to be 'close' in distance
- ❖ Time and distance parameters can be calculated for ongoing 'real time' crime series

Mapping product?

	1	2	3	4	5	6	7	8	9	10	11	12	13
1													
2													
3						X							
4									X				
5							X						X
6													
7													X
8										X		X	
9													
10												X	
11													
12													
13													

Mapping product?



References

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